
In re Swinehart and Sfiligoj

(CCPA)

169 USPQ 226

Decided Apr. 1, 1971

No. 8396

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Claims - Functional - In general (§ 20.451)

"Functional" indicates nothing more than fact that attempt is being made to define something by what it does rather than by what it is; there is nothing intrinsically wrong with use of such technique in drafting patent claims.

2. Claims - Functional - In general (§ 20.451)

Court sees no merit in any proposition which would require denial of claim solely because of type of language used to define subject matter for which patent protection is sought.

3. Claims - Functional - In general (§ 20.451)

Patentability - Subject matter for patent monopoly - Function (§ 51.603)

Concern over use of functional language at "point of novelty" stems largely from fear that applicant will attempt to distinguish over reference by emphasizing property or function not mentioned in reference and thereby assert that his claimed subject matter is novel; such a concern is irrelevant and misplaced; mere recitation of newly discovered function or property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art; additionally, where Patent Office has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may, in fact, be an inherent characteristic of prior art, it

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possesses authority to require applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on.

4. Claims - Functional - In general (§ 20.451)

There is no support, in holdings of prior cases or in statute, for proposition that "functional" language, in and of itself, renders claim improper; moreover, there is no court decision holding that there is some other ground for objecting to claim on basis of any language, "functional" or otherwise, beyond what is already sanctioned by 35 U.S.C. 112.

5. Claims - Broad or narrow - In general (§ 20.201)

Claims - Functional - In general (§ 20.451)

Claims - Indefinite - In general (§ 20.551)

Assuming that applicant is claiming what he regards as his invention, there are in reality only two basic grounds for rejecting claim under 35 U.S.C. 112; first is that language used is not precise and definite enough to provide clear-cut indication of scope of subject matter embraced by claim; this ground finds its basis in second paragraph of section 112; second is that language is so broad that it causes claim to have a potential scope of protection beyond that which is justified by specification disclosure; this ground stems from first paragraph of section 112; merits of "functional" language in claim must be tested in light of these two requirements alone.

6. Claims - Functional - In general (§ 20.451)

"Functional" terminology may render claim quite broad; by its own literal terms, claim employing such language covers any and all embodiments which perform recited function; legitimate concern often exists as to whether scope of protection defined thereby is warranted by scope of enablement indicated and provided by description contained in specification; this is not to say, however, that every claim containing "functional" terminology is broad, since, in many cases, it is obvious that only a very limited group of objects will fall within intended category.

Particular patents-Crystalline Materials

Swinehart and Sfiligoj, Crystalline Materials, claim 24 of application allowed.

Case History and Disposition:

Appeal from Board of Appeals of the Patent Office.

Application for patent of Carl F. Swinehart and Marko Sfiligoj, Serial No. 314,952, filed Oct. 9, 1963; Patent Office Group 165. From decision rejecting claim 24, applicants appeal. Reversed; Lane, Judge, concurring with opinion; Almond, Judge, dissenting with opinion.

Attorneys:

John P. Hazzard and James A. Lucas, Cleveland, Ohio, for appellant.

S. Wm. Cochran (Joseph F. Nakamura of counsel) for Commissioner of Patents.

Judge:

Before Rich, Almond, Baldwin, and Lane, Associate Judges, and Newman, Judge, United States Customs Court, sitting by designation.

Opinion Text**Opinion By:**

Baldwin, Judge.

This appeal is from the decision of the Patent Office Board of Appeals, adhered to on reconsideration, which affirmed the rejection of claim 24 in appellants' application ¹ as failing to meet the requirements of 35 U.S.C. 112. The board reversed the rejection of two other claims.

The Invention

The subject matter of the appealed claim is a composition of matter essentially made up of barium fluoride and calcium flouride in approximately eutectic proportions. The record indicates, and appellants confirm, that "[e]utectic compositions of barium fluoride and calcium fluoride are well known in the prior art." However, appellants are apparently the first to discover that when crystalline forms of these two components are melted together in eutectic proportion and then resolidified by "conventional crystal-growing techniques," there results a multi-phase crystalline body characterized by an intimate matrix of large, visible crystals, which, unlike the prior art materials, does not cleave, is resistant to thermal shock and impact and approaches maximum density for the overall composition. In addition, and allegedly unexpectedly, these crystalline bodies "are capable of transmitting collimated light," especially in the infrared wave range.

The appealed claim recites:

24. A new composition of matter, transparent to infra-red rays and resistant to thermal shock, the same being a solidified melt of two components present in proportion approximately eutectic, one of said components being BaF

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2and the other being CaF₂.

According to their brief, "[t]he exact point of novelty between appellants' claimed composition and that of the prior art is transparency." ²

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The Grounds for Rejection

The examiner rejected claim 24 "for failing to particularly point out and distinctly claim the invention as required in 35 U.S.C. 112." His asserted reasons were as follows:

Claim 24 is functional and fails to properly point out the invention.

Applicants point out on page 2 of the specification, lines 24-27 that when the components are merely fused and cast as an integral body, said body is opaque.

This claim in reciting "transparent to infrared rays" is thus improperly functional.

* * * It should also be noted that this claim does not require more than one phase.

The board agreed, adding:

Claim 24 stands rejected as improperly functional in that it distinguishes over the unsatisfactory material of appellants' figure 3 merely in the functional term "transparent to infrared rays." We agree with the examiner in this respect, as transparency of the claimed material cannot be treated as an inherent, characteristic property, in view of the fact that the composition of appellants' Example V (figure 3) lacks this property, yet is made of the same materials as appellants' Example I. * * * This claim is not the type covered by a proper functional limitation pursuant to 35 U.S.C. 112, since the language in question does not define a means or a step, or a distinguishing ingredient.

Opinion

It is fairly safe to conclude from the language quoted above that the examiner and the board considered the use of functional language, per se, to render the instant claim indefinite. Appellants have apparently conceded that "functionality" is ordinarily equated with indefiniteness. They argue strenuously, however, that the disputed language here does not necessarily refer to a function of the recited composition or to a desired result but rather it defines a physical property. On the record produced in the Patent Office, therefore, it would appear that the single issue before us is whether the disputed language is in fact "functional". If this issue were determinative, appellants would fail since we have no doubt that such language is "functional" at least insofar as we interpret the meaning of that term. In any event, for reasons which will become clear as this opinion progresses, we find that issue to be not only *not* determinative of whether claim 24 satisfies the requirements of 35 U.S.C. 112 but also irrelevant in the analysis leading up to that determination.

[1] We take the characterization "functional", as used by the Patent Office and argued by the parties, to indicate nothing more than the fact that an attempt is being made to define something (in this case, a composition) by what it *does* rather than by what it *is* (as evidenced by specific structure or material, for example). In our view, there is nothing intrinsically wrong with the use of such a technique in drafting patent claims. ³ Indeed we

have even recognized in the past the practical *necessity* for the use of functional language. See, for example, *In re Halleck*, 57 CCPA 954, 421 F.2d 911, 164 USPQ 647 (1970). We recognize that prior cases have hinted at a possible distinction in this area depending on the criticality of the particular point at which such language might appear. ⁴ Our study of these cases has satisfied us,

[3] however, that any concern over the use of functional language at the so-called "point of novelty" stems largely from the fear that an applicant will attempt to distinguish over a reference disclosure by emphasizing a property or function which may not be mentioned by the reference and thereby assert that his claimed subject matter is novel. Such

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a concern is not only irrelevant, it is misplaced. In the first place, it is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

[4] We are convinced that there is no support, either in the actual holdings of prior cases or in the statute, for the proposition, put forward here, that "functional" language, in and of itself, renders a claim improper. We have also found no prior decision of this or any other court which may be said to hold that there is some other ground for objecting to a claim on the basis of *any* language, "functional" or otherwise, beyond what is already sanctioned by the provisions of 35 U.S.C. 112. ⁵

[5] Assuming that an applicant is claiming what he regards as his invention, there are in reality only two basic grounds for rejecting a claim under § 112. The first is that the language used is not precise and definite enough to provide a clear-cut indication of the scope of subject matter embraced by the claim. This ground finds its basis in the second paragraph of section 112, the rationale for which was discussed by us recently in *In re Hammack*, 57 CCPA 1225, 427 F.2d 1378, 166 USPQ 204 (1970). The second is that the language is so broad that it causes the claim to have a potential scope of protection beyond that which is justified by the specification disclosure. Cf. *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 37 USPQ 466 (1938). This ground of rejection is now recognized as stemming from the requirements of the first paragraph of 35 U.S.C. 112. See *In re Robins*, 57 CCPA 1321, 429 F.2d 452, 166 USPQ 552 (1970); *In re Borkowski*, 57 CCPA 946, 422 F.2d 904, 164 USPQ 642 (1970). Cf. *In re Halleck*, *supra*. The merits of the "functional" language in the claim before us must be tested in the light of these two requirements alone.

[6] "Functional" terminology may render a claim quite broad. By its own literal terms a claim employing such language covers *any and all* embodiments which perform the recited function. Legitimate concern often properly exists, therefore, as to whether the scope of protection defined thereby is warranted by the scope of enablement indicated

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and provided by the description contained in the specification. This is not to say, however, that every claim containing "functional" terminology is broad. Indeed, in many cases it will be obvious that only a very limited group of objects will fall within the intended category. Such appears to be the case here, since we do not sense any concern by the Patent Office that appellants are claiming more than they are entitled to claim under the first paragraph of section 112. We need not, therefore, consider whether there are any problems with the appealed claim arising under that paragraph. It is clear that the arguments of the parties are concerned solely with whether the disputed language serves to define the subject matter for which protection is sought with the distinctness and particularity which are required by the second paragraph of section 112.

In the brief for the Patent Office, it has been asserted for the first time that the limits of appellant's invention clearly are not fixed by the expression "transparent to infrared rays." The expression is not defined, and in fact does not appear, in appellant's written description of their invention.

The solicitor points out that, in their specification, appellants demonstrate the novel aspect of their invention by setting out three charts depicting the percentage (as a function of wavelength) of infrared radiation transmitted through a 5mm thick "window" made from a eutectic composition of the components recited in the claim. One chart indicates that a fused and cast mixture of the two components transmits "substantially zero" collimated light in the infrared range. The other two charts indicate that when the fused mixture is "grown to form a crystal ingot", windows made therefrom transmit up to approximately 80% of infrared radiation depending on the particular wavelength of the

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radiation. What those charts also appear to indicate, however, is that the conditions used in preparing the product may affect to some extent both the percentage transmission and the band of wavelength transmitted. The solicitor argues that "transparency is a matter of degree" and complains that because the "less favorable conditions" which produce a less effective product are not specifically disclosed in the specification

one would not know whether a product is "transparent to infrared rays", and therefore would infringe the claims, if the product transmits less infrared than is shown in Fig. 2.

Accepting the solicitor's argument as an attack on the definiteness of the disputed language in the claim before us, we must nevertheless disagree that the claim is rendered indefinite by that language. The record before us establishes that prior art compositions are substantially opaque to infrared rays. Appellants have produced a composition which is substantially transparent to such rays. Such a composition is conceded to be novel. It is true that the figures reproduced in the specification indicate that the degree of transparency varies depending on such factors as the conditions employed in producing the crystal, the thickness of the crystal and the particular wave length of the radiation transmitted. However, in all cases a *substantial* amount of infrared radiation is transmitted. We do not read appellants' disclosure as suggesting that only certain *degrees* of transparency to infrared are comprehended within the teaching there given. It follows that when appellants' claim is read in light of that disclosure the limits it purports to

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define are made sufficiently clear.

The decision of the board is *reversed*.

Footnotes

Footnote 1. Serial No. 314,952, filed October 9, 1963, for "Crystalline Materials."

Footnote 2. We observe that the term "transparent", as indicated by its primary dictionary definition of "having the property of transmitting light without appreciable scattering so that bodies lying beyond are entirely visible," generally is taken to refer to those light waves which are visible to the human eye. The parties here seem to agree that in the claim before us the term is used in its less common sense of being "pervious to any specified form of radiation." Clearly the most important defining characteristic of the word, which is the same in either sense, is that the light is transmitted "without appreciable scattering." Ref: Webster's Third New International Dictionary (G & C Merriam Co., 1969).

Footnote 3. We think our views herein are in accord with those of Congress as indicated by the language of the third paragraph of 35 U.S.C. 112. Note also the discussion and authorities cited on this point in *In re Fuetterer*, 50 CCPA 1453, 319 F.2d 259, 138 USPQ 217 (1963).

Footnote 4. [2] The solicitor, it appears, would also treat the question of *what* is being defined as important. He distinguishes a case relied on by appellants as "irrelevant" since the functional term there permitted dealt with novel proportions in a composition whereas here the question is "whether novelty in structure can be precisely defined in wholly functional terms." Nevertheless, we are unable to see merit in any proposition which would require the denial of a claim *solely* because of the *type* of language used to define the subject matter for which patent protection is sought. Insofar as the opinion in *In re Fisher*, 50 CCPA 1025, 307 F.2d 948, 135 USPQ 22 (1962), cited and relied on by the Patent Office here is inconsistent with the above statement, it will no longer be followed. Any doubt whether claims containing language such as that used in the *Fisher* case would be patentable was laid to rest last term when this court reversed the Patent Office position when the *Fisher* application came before us for a second time. See *In re Fisher*, 57 CCPA 1099, 427 F.2d 833, 166 USPQ 18 (1970).

Footnote 5. Compare the following language quoted from the opinion in *Locklin v. Switzer Bros., Inc.*, 125 USPQ 515, 519 (N.D. Cal., 1959), *aff'd* 299 F.2d 160, 131 USPQ 294 (9th Cir. 1961):

Plaintiffs cite a multitude of cases in support of the argument that this functional expression invalidates the claims. But, none of these cases holds that claims employing functional expressions to define the claimed invention are per se invalid. In all of the cases relied upon by Plaintiff the claims were disapproved because under the particular circumstances the use of functional expressions either left the description of the invention too vague or made the claim broader than the invention.

Concurring Opinion Text

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Concur By:**Lane, Judge, concurring.**

I concur in the result reached by the principal opinion. While I do not necessarily disagree with the conclusions about functionality stated therein, I find it unnecessary in this case to make such conclusions.

Taking the language of the third paragraph of section 112 as a definition of the type of "functional" expressions which have long been troublesome in patent law, I find that such expressions are those which recite "a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." An example of what is meant by "a specified function" is found in the Supreme Court's opinion in *General Electric Co. v. Wabash Appliance Corp.*, 304 U.S. 364, 37 USPQ 466 (1938). In that case, offsetting and sagging of filaments in incandescent lamps had long been a problem in the art. The specification there described how to remedy those problems by regulating the size and shape of the grains of material making up the filaments. The claims contained the following expression, which was relied upon for novelty: "grains of such size and contour as to prevent substantial sagging and off-setting during a normal or commercially useful life for such a lamp." *Id.* at 368, 37 USPQ at 468. The court stated:

"A limited use of terms of effect or result, which accurately define the essential qualities of a product to one skilled in the art, may in some instances be permissible and even desirable, but a characteristic essential to novelty may not be distinguished from the old art solely by its tendency to remedy the problems in the art met by the patent.

Id. at 371, 37 USPQ at 469. The court thus held, under the patent law then in effect, that certain kinds of functional expressions were impermissible at the point of novelty, specifically, those wherein the recited function is merely the solution of a problem in the art.

It cannot be the law that all functional terms are condemned when used to distinguish a claimed invention from the prior art. If this is the law, and it is carried to its logical conclusion, many nouns and adjectives would be condemned as functional, since they define in terms of use or effect. For example, a "door" is something used to close and open a passageway; a "nail" is an object used to hold two pieces of material together; a "black" material is one incapable of reflecting visible light. It is apparent to me that if functionality at the point of novelty is ever per se a ground for rejecting claims, it is not always so.

The kind of function recited in the product claim before us—transparent to infrared rays—is a physical characteristic of the composition of matter claimed. Moreover, no one has suggested a more distinct way of defining that composition, although it has been argued that the degree of transparency might be more precisely defined. I conclude that the recitation here is not the kind of claim functionality condemned by earlier cases but that it is a kind which is permitted.

It is true that all expressions in claims, functional or otherwise, must be definite in order to satisfy the second paragraph of 35 U.S.C. 112. I am in agreement with the

principal opinion that the expression here in issue is reasonably definite.

Dissenting Opinion Text

Dissent By:

Almond, Judge, dissenting.

I agree with everything in the majority opinion except the conclusion that appellants' use of the phrase "transparent to infra-red rays" in claim 34 does not make the claim indefinite. The majority apparently would define "transparent" as "substantially transparent" or as transmitting "a *substantial* amount of infrared radiation." This is necessary since accepting a dictionary definition such as "transmitting light" or "opposed to opaque" would raise the question of what there is in the mere word "transparent" to distinguish the claim from the prior art compositions which appellants have characterized as being only "substantially" opaque (indicating that some light may be transmitted).

Even reading the limitation "substantially transparent" into the claim, which is of questionable propriety since a claim should be given the broadest interpretation reasonable during prosecution (see *In re Prater*, 56 CCPA 1381, 415 F.2d 1393, 162 USPQ 541 (1969), does not in my opinion make the claim definite. When does a eutectic composition stop being "substantially opaque" and become "substantially transparent"? The mere fact that there is no definite answer to this question means to me that the claim is indefinite. The second paragraph of 35 U.S.C. 112 requires that the claim point out the invention with more particularity than was done here, and this is especially significant since "the exact point of novelty between appellants' claimed composition and that of the prior art is transparency." Since no clear metes and bounds have been set forth, it appears to me that the solicitor was right in stating that:

* * * the lower limits of the claimed product are not fixed as to percent transmission and band of wavelengths transmitted, and one would not know whether a product is "transparent to infrared rays", and therefore would infringe the claims, if the product transmits less infrared than is shown in Fig. 2.

I would, therefore, affirm the decision of the board.

- End of Case -

